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## Serie Research Memoranda

Developing information systems in a turbulent environment:  
the case of the Dutch social security system

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**DEVELOPING INFORMATION SYSTEMS IN A  
TURBULENT ENVIRONMENT: THE CASE OF THE  
DUTCH SOCIAL SECURITY SYSTEM**

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**ABSTRACT**

*Turbulence within an organization 's environment often creates changes in the need for information and consequently in existing information systems. Coping with these changes can be extremely complicated. Part of our research which is addressed in this paper is to describe and analyze these coping strategies. The research focusses on the Dutch Social Security systems and how 572 more-or-less independent municipalities cope with situations of rapidly changing environments such as changes in legislation and governmental policies. By studying the social dynamics in depth, our aim is to uncover new findings about information systems development (LSD).*

**1. INTRODUCING RESEARCH IN PROGRESS**

The preliminary findings presented in this paper are based on current research conducted by the two authors of this paper. The aim of the empirical research is to study how Local Social Securities (LSSs) in the Netherlands deal with translating changing



legislation into software that impacts the provision of social security services. Since there does not exist sufficient theoretical knowledge on this issue from which to derive hypotheses, the research is exploratory and mainly inductive. By studying the social dynamics in depth, our aim is to uncover new findings about information systems development (ISD). Such insight is conceptually relevant as it might add to the existing middle range theories of ISD. It also has practical value since the framework presented in the paper can be used by actors in the field of information system (IS) management as a tool to analyze and evaluate coping strategies employed by IS departments facing turbulent environments. To our knowledge, there has not been an attempt to gain a comprehensive understanding of how IS departments cope with or might cope with situations of rapidly changing environments. Such a research is worthwhile because managing change is relevant to every organization dealing with information systems, and is crucial to those which experience rapidly changing environments. Turbulence within the environment often creates a change in the need for information and consequently in existing information systems. Coping with these sources of uncertainty can be extremely complicated. Part of our task is to describe and analyze these coping strategies.

The case of the Dutch Social Security System is highly relevant because it represents a perfect example of an organization in a constant state of flux. Because of changes in governmental legislation, policy, technological changes, etc. LSSs are confronted with continual exogenous changes.

At the moment 572 municipalities exist in the Netherlands each having its own LSS. As a result of a long established decentralization policy, each LSS is empowered to choose its own ISD approach. Because the strategies employed by the various LSS do indeed vary significantly while the same informational needs apply across the LSS's, we have an ideal form of a naturally occurring social experiment. As part of studying the different approaches and results, we will look at the successes and failures of ISD in turbulent environments.

We want to study four major cities, a sample of medium sized cities and a further sample of small towns. Research evidence will

be obtained from interviews with people working at LSSs, people active in the local and national government, software suppliers, and other actors relevant to ISD at LSS. In addition to interviews, information will be obtained from documents and observations. A comparative research approach (Yin 1989) will be used in which different ISD approaches, processes and outcomes are compared.

The research is mainly explorative, meaning that interesting ideas emerge while doing research. In fact, we started the research by looking at a problematic ISD project of one big city in the Netherlands. Soon it became clear that almost every city in the Netherlands is facing problems with ISD and that cities use different strategies to cope with these problems. Given the emerging nature of the research, we will explore during the course of research various theoretical models that might structure our findings (cf. Newman and Noble 1990). Potential conceptual frameworks are theories on organizational learning and decision making, power, actor network theory, and institutionalism (cf. Clegg 1989, Law 1994, Levitt and March 1988, March and Olsen 1989, Scott and Meyer 1994).

We begin by presenting various sources of change the LSSs face or have faced. This will be followed by a discussion of the various constraints that LSSs face in coping with these changes and which strategies they employed to cope with these constraints. Given its status, the paper ends with future research plans. The material from which the present ideas are derived consist of in total 21 tape recorded and fully transcribed interviews and information obtained from documents such as governmental reports, bulletins of the LVO, newspaper reports, and research documents.

## **2. SOURCES OF EXOGENOUS CHANGES**

### **2.1 Governmental legislation producing mandatory changes**

An example of a major mandatory change is the introduction of the NABW (the New SSA) in Januari 1996 which induced some drastic changes some of which still need to be implemented. Amongst other changes, this act allows for financial decentralization. Within the legal open space created by the central

government, every municipality has the authority to decide how to spend the budget that is provided by the central government. Furthermore, an important section of the NABW deals with the responsibility of LSSs to decrease the number of welfare recipients and to reduce fraud significantly. These new responsibilities require radical changes.

To date, the number of LSSs that have ‘successfully’ implemented an IS that corresponds to the specific requirements of the New Social Security Act can be counted on the fingers of one hand.

## **2.2 Elections/political programs**

Local government elections may also induce changes that might impact the information requirements of the LSS. Changing the political color within the local government often results in a change in policy regarding the Social Services. For example, the SS budget can be reduced or can be designated to other topics related to SS such as the prevention of fraud or the support of employment. All these and other changes as a result of changing political programs may have a huge impact on the existing IS and on IS that need to be build.

## **2.3 Technological developments**

Organizations try to adapt their present IS policy to the latest changes in hardware and software. Such technological-driven changes may involve designing or buying totally new systems or adjusting the existing systems to the latest developments. For example, the National Government proposed in the middle of 1997 to introduce an Intranet within all LSSs in order to exchange information and to ameliorate the problem of decentralizing information.

## **2.4 Institutional pressures, centralization/decentralization**

An important institutional pressure that the LSSs are facing is the tendency either to centralize or decentralize the organization, or

to find some sort of a mixture between the two. For example, some influential actors within politics, administration, and universities say that because of past decentralization, more supervision from the government is now needed. The minister of Social Affairs even said at a recent speech that “decentralization is needed in exchange of centralization of information”. This need for supervision has already found its expression in National policy plans to introduce IS that integrate the various data that now are dispersed over many different organizations. These so-called clearinghouses will also change the present information requirements and the present systems that IS departments are currently building.

### **3. CONSTRAINTS AND THEIR CORRESPONDING STRATEGIES**

#### **3.1 Past experiences**

Past experience may influence the way organizations cope with changing environments. Past commitments to software suppliers, legacy systems, expected advantages of converting old systems to new ones, and the build up of experiences with software suppliers all ensure that most LSS seldom choose for a drastic change in IS policy even though the environmental situation may deem that drastic changes are necessary.

A way to break with this tradition we observed is to hire new management or to introduce reorganizations. The success of these strategies are however questionable since the vested interests at LSS are dispersed among various actors within a field that is much wider than the single LSS organization. Consequently, breaking with past experiences at LSSs is a highly political move.

#### **3.2 Culture**

At most LSSs a bureaucratic approach to work prevails . In its extremes, such a culture is expressed by a lack of entrepreneurial spirit, a ‘wait and see’ attitude, a shirking of responsibility, etc. Besides being bureaucratic, the LSS is also a political organization. The counselor of social affairs is the head responsible for the LSSs

affairs. This also implies that major decisions can only be made when the local government has given its approval', often resulting in a delayed reaction to environmental changes.

The most common strategy to cope with culture as a constraint we observed is to attempt to change the culture by means of hiring new personnel and by introducing reform plans.

### **3.3 Shortage or lack of expertise**

Most LSSs do not have their own IS departments which seriously influences the existing expertise in developing IS. Furthermore, at those LSSs where the IS function is represented in one way or another, this personnel in general have less expertise than people working within IS organizations such as software-houses.

A coping strategy that is used by almost all municipalities is to outsource the IS function.

### **3.4 Software suppliers**

Because of economies of scale, many LSSs have outsourced the IS function. At the moment six independent software houses are now designing systems for approximately 570 municipalities. Most LSSs are experiencing problems with these suppliers because they deliver systems too late and with many software problems which add to expenditures.

A coping strategy could be to change from software supplier or to develop systems in house. However, because software houses have gained the most detailed expertise and because a lot of money has already been spent, the switching costs for most LSSs are perceived to be too high. The actual coping strategies that we have come across so far is to continue the contract and to introduce various patchwork strategies to cope with the software problems, such as executing some of the procedures by hand, working overtime, or working with duplicate systems.



### **3.5 Technological rigidity**

It has been widely accepted that traditional IS, such as accountancy systems, payment systems and monitoring systems are not well suited to adapt to frequent changes (e.g. Fitzgerald 1990). This problem of rigidity was also an issue in the case of LSS systems. The fact that the existing IS cannot easily absorb the changing information requirements, is one of the most often-mentioned problems of IS in the field of social services.

Perceiving the issue from a technological perspective leads to proposing technical solutions such as using flexible design methods, building flexible systems, or building 'early warning systems'. In fact, the most popular software packages at the LSSs are relatively flexible systems.

### **3.6 Budgets**

Clearly, a large budget for IS development would enable an LSS to adapt to changing information requirements. But common to most organizations, the social services are confronted with a limited budget that is subject to the allocation policy of the local government.

One possible strategy to challenge this constraint, which we came across at one LSS, is to lobby local and national politicians. Another option is to choose for some form of collaboration within governmental institutions.

### **3.7 Time**

The need to adapt to environmental changes is often accompanied by fixed date of implementation. For example, the New Social Security Act had to be implemented by all 572 LSSs before the first of January 1996. Most LSSs failed in doing so.

There are many strategies for coping with time-constraint and that we came across at various LSSs such as shirking one's responsibility, delaying, ignoring, and hypocrisy (Brunsson 1989).

### 3.8 Publicity

Developing systems in the public arena may involve large costs of failure. Adjusting systems to changing environment means huge expenditures. These expenditures can be so high that it may become a public issue. This was the case at various large LSSs we spoke with.

LSSs often use PR strategies to cope with this problem of publicity. Another way to deal with this problem is hide politically delicate and critical information from public scrutiny. This strategy seems to be successful only in the short run. Employees can become so frustrated by the stressful situation that is created within the LSS that important information is leaked out to journalists or politicians, a situation we discovered at more than one occasion.

### 3.9 Decentralization

Because the execution of the Social Security Act is decentralized, the 572 LSSs are to a certain extent independent from other LSSs in deciding how to cope with changes within the environment. Each LSS can decide for itself which software package to buy. Such decentralization can act as a constraint in the sense that every organization is “inventing the wheel” on its own. In the words of the Minister of Social Affairs: ***“there is a lot of error alone and a lack of trial together”***.

A strategy that LSSs employ to cope with this lack of economies of scale is to learn from experience gained by other LSSs. This is done by being member of various committees, institutions and organizations. On national level, the problem of decentralization is dealt with by introducing centralization policies and by conducting bench-mark studies among the LSSs.

## 4. CONCLUDING REMARKS AND FURTHER RESEARCH

In this paper we have presented ideas that have been derived so far from our research on the management of environmental change. Figure 1 portrays a summary of these preliminary findings.

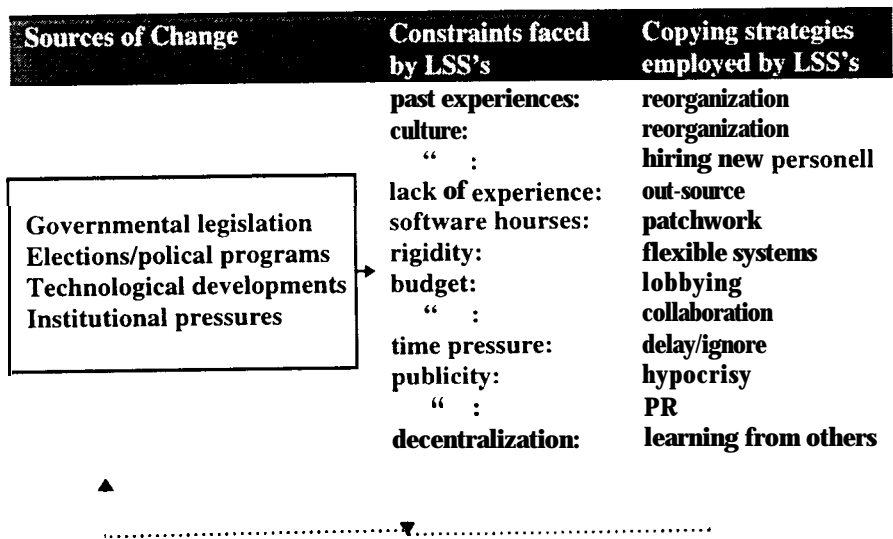


Figure 1 Coping with changes and constraints at Local Social Services

The present study presented the first preliminary findings of a longitudinal multiple case studies at different LSSs. Our research started in January 1997 and will continue for at least three years. During these years we hope to study the management of change at LSSs in more detail. This study will not only cover past processes and (critical) events, it will also address the processes as they take shape in situ. In order to do so, we are at the moment in the process of getting access to three LSS in order to pilot study the social dynamics of ISD in more detail and over a longer time interval.

The findings presented in this paper are based on a select group of LSSs and therefore suffer from limitations of a small sample (Miles and Huberman 1984). Also, there are various actors in the field that have not yet been interviewed, such as people working with the systems and the designers of the systems. Their accounts will make the stories more detailed as well as more complex.

There are various research issues that need to be studied in the future in more detail, such as:

- strategies LSSs and other relevant institutions *could* employ to cope with changes and corresponding constraints.(e.g. use of

predictive models; forming collaborative alliances; use of technologies for information sharing, e.g. intranets);

- the way copying strategies are in turn influenced by constraints (the dotted line in figure 1);
- the “costs” of decentralized policy and how these costs can be minimized;
- the learning strategies of LSSs from their own experiences and from the experiences of other LSSs and how these experiences can be shared more effectively.

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